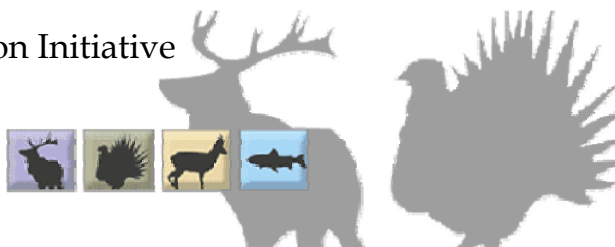




## Wyoming Landscape Conservation Initiative

*Conserving world-class wildlife resources  
Facilitating responsible development*



# WLCI 2012 Science Workshop Agenda

<b>Tuesday, May 15</b> <b>Introduction &amp; Science Presentations</b>	
8:30 to 8:35 am	<i>Introductions and Acknowledgements.</i> Pat Anderson, USGS/WLCI Coordination, USGS Fort Collins Science Center.
8:30 to 9:00 am	<i>Welcome &amp; Opening Comments.</i> Mary Thoman, WLCI Executive Chair, Conservation Districts; Randy Updike, WLCI Executive, Regional Executive, USGS Rocky Mountain Area; John Ruhs, BLM High Desert District Manager.
9:00 to 9:20 am	<i>Keynote Speaker.</i> Pete Obermueller, Legislative Director for U. S. Congressman Cynthia Lummis.
9:20 to 9:45 am	<i>WLCI Science &amp; Workshop Organization.</i> Zack Bowen, USGS/WLCI Science Team and Pat Anderson, USGS Fort Collins Science Center.
9:45 to 10:00 am	<i>Break</i>
<b>Session I: Changing Landscapes: Development and Influence of Energy and Mineral Resources</b>	
10:00 to 10:05 am	<i>Introduction to Session I.</i> <b>Christopher Potter</b> , USGS Central Energy Resources Science Center, Denver, CO.
10:05 to 10:25 am	<i>Energy Map of Southwestern Wyoming: Energy Data Archived, Organized, and Accessible.</i> <b>Laura R.H. Biewick</b> , USGS Central Energy Resources Science Center, Denver, CO; Nicholas R. Jones, University of Wyoming Enhanced Oil Recovery Institute, Laramie, WY; Anna B. Wilson, USGS Central Mineral and Environmental Resources Science Center, Denver, CO.
10:25 to 10:45 am	<i>Energy Mineral Development in Southwest Wyoming — An Overview.</i> <b>Nicholas R. Jones</b> , University of Wyoming Enhanced Oil Recovery Institute, Laramie, WY.
10:45 to 11:05 am	<i>Natural Gas Wells and Related Development on Surface Resources in the Pinedale Anticline and Jonah Gas Fields, Sublette County, Wyoming.</i> <b>Timothy J. Zebulske</b> , BLM Pinedale Field Office, Pinedale, WY.
11:05 to 11:25 am	<i>Overview of Encana's Jonah Field and Proposed NPL Project.</i> <b>Paul Ulrich</b> and Randy Teeuwen, Encana Oil & Gas (USA) Inc., Pinedale, WY.
11:25 to 11:45 am	<i>Mineral Resources of the Wyoming Landscape Conservation Initiative (WLCI) Study Area—Past, Present, and Future.</i> <b>Anna B. Wilson</b> , USGS Central Mineral and Environmental Resources Science Center, Denver, CO.
11:45 to 12:05 pm	<i>A Probabilistic Approach to Estimates of Future Oil and Gas Development Impacts.</i> <b>Sarah J. Hawkins</b> , Troy A. Cook, Seth S. Haines, USGS Central Energy Resources Science Center, Denver, CO; James E. Diffendorfer, USGS Rocky Mountain Geographic Science Center, Denver, CO.
12:05 to 12:25 pm	<i>Rancher Perceptions of Energy Development in Southwest Wyoming.</i> <b>Jessica M. Montag</b> , USGS Fort Collins Science Center, Fort Collins, CO; Katie M. Lyon, Colorado State University, Fort Collins, CO.
12:25 to 12:35 pm	<i>Session I Questions</i>
12:35 to 1:35 pm	<i>Lunch</i>

<b>Session II. Understanding the Influence of Land Use and Energy Development on Wildlife Populations and Their Habitats</b>	
1:35 to 1:40 pm	<i>Introduction to Session II.</i> Jeff Kershner, USGS Northern Rocky Mountain Science Center, Bozeman, MT; Steve Germaine, USGS Fort Collins Science Center, Fort Collins, CO.
<b>Session II A. Energy Development, Life History, and Movements of Large Ungulates.</b>	
1:40 to 2:00 pm	<i>Assessing the Relative Exposure to Development for Wyoming's Species of Greatest Conservation Need.</i> <b>Douglas Keinath</b> , University of Wyoming, Wyoming Natural Diversity Database, Laramie, WY; Matthew Kauffman, Wyoming Cooperative Fish and Wildlife Research Unit, Laramie, WY; Daniel Doak, University of Wyoming, Department of Zoology and Physiology, Laramie, WY; Holly Copeland, and Amy Pocewicz, The Nature Conservancy, Lander, WY; Mark Andersen, University of Wyoming, Wyoming Natural Diversity Database, Laramie, WY.
2:00 to 2:20 pm	<i>Elk Seasonal Resource Selection Before and During Development of a Natural Gas Field.</i> <b>Clay B. Buchanan</b> and Jeffrey L. Beck, Department of Ecosystem Science and Management, University of Wyoming, Laramie, WY; Thomas E. Bills, BLM Buffalo Field Office, Buffalo, WY.
2:20 to 2:40 pm	<i>Evaluating the Influence of Development on Ungulate Migrations.</i> <b>Teal B. Wyckoff</b> , Wyoming Cooperative Fish and Wildlife Research Unit and the Wyoming Geographic Information Science Center, University of Wyoming, Laramie, WY; Matthew J. Kauffman, USGS, Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie, WY; Steven L. Garman, USGS Rocky Mountain Geographic Science Center, Denver, CO; Jamie L. McBeth, USGS Rocky Mountain Geographic Science Center, Bozeman, MT.
2:40 to 3:00 pm	<i>Pronghorn Response to Wind Energy Development on Winter Range in South Central, Wyoming.</i> <b>Katie Taylor</b> and Jeffrey L. Beck, Department of Ecosystem Science and Management, University of Wyoming, Laramie, WY.
3:00 to 3:20 pm	<i>Break</i>
3:20 to 3:40 pm	<i>Mule Deer Migration and Energy Development: An Update on WLCI Research.</i> <b>Hall Sawyer</b> , Western Ecosystems Technology, Inc., Laramie, WY; Matt Kauffman, USGS, Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie, WY.
<b>Session II B. Energy Development, Life History, and Habitats of Birds, Fish, and Small Mammals.</b>	
3:40 to 4:00 pm	<i>Songbirds and Energy Development: Patterns and Mechanisms.</i> <b>Anna D. Chalfoun</b> , USGS Wyoming Cooperative Fish and Wildlife Research Unit, Department of Zoology and Physiology, University of Wyoming, Laramie, WY; Michelle M. Gilbert and Matthew G. Hethcoat, Department of Zoology and Physiology, University of Wyoming, Laramie, WY.
4:00 to 4:20 pm	<i>Identifying the Relationship Between Natural Gas Energy Development and Pygmy Rabbit (<i>Brachylagus idahoensis</i>) Site Occupancy.</i> <b>Steve Germaine</b> , Jeff Kemper, USGS Fort Collins Science Center, Fort Collins, CO; Dale Woolwine, BLM Pinedale Field Office, Pinedale, WY; Drew Ignizio, Cherokee Services Group, Fort Collins, CO.
4:20 to 4:40 pm	<i>Burrowing Owl Nest Predictive Modeling for the Normally Pressured Lance (NPL) Project Area.</i> John Dahlke and <b>Matt Holloran</b> , Wyoming Wildlife Consultants LLC, Pinedale, WY.
4:40 to 5:00 pm	<i>Modeling Concentration Areas for Migratory Birds in Wyoming.</i> <b>Amy Pocewicz</b> , The Nature Conservancy, Lander, WY; Wendy Estes-Zumpf, Mark Andersen, Doug Keinath, Wyoming Natural Diversity Database, Laramie, WY; Holly Copeland, The Nature Conservancy, Lander, WY.
<b>Poster Presentations &amp; Social</b>	
6:00 to 8:00 pm	<i>See Poster Agenda for Poster Titles, Authors, and Assigned Sessions</i>

**Wednesday, May 16**  
**Science Presentations, Holiday Inn Conference Center**

***Session II B, continued. Energy Development, Life History, and Habitats of Birds, Fish, and Small Mammals.***

8:00 to 8:20 am	<i>Spatial Variation in the Isotopic Niche of Freshwater Fishes in the Bear River Drainage, Great Basin, USA.</i> <b>Mark C. Belk</b> , and Jeff Wesner, Brigham Young University, Provo, UT.
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***Session II C. Greater Sage-Grouse and Human Development***

8:20 to 8:40 am	<i>State-wide Seasonal Habitat Selection in Wyoming Greater Sage-Grouse.</i> <b>Brad Fedy</b> and Cameron Aldridge, Natural Resource Ecology Laboratory, Colorado State University and USGS Fort Collins Science Center, Fort Collins, CO; Kevin Doherty, United States Fish and Wildlife Service, Bismarck, ND; Michael O'Donnell, USGS Fort Collins Science Center, Fort Collins, CO; Jeffrey Beck, Department of Ecosystem Science and Management, University of Wyoming, Laramie, WY; Bryan Bedrosian, Craighead Beringia South, Kelly, WY; Mathew Holloran, Wyoming Wildlife Consultants LLC, Pinedale, WY; Christopher Kirol, Department of Ecosystem Science and Management, University of Wyoming, Laramie, WY; David Marshall, KC Harvey Environmental, LLC, Bozeman MT; Gwyn McKee, Thunderbird Wildlife Consulting, Inc., Gillette, WY; Cheryl Mandich, University of Wyoming/Casper Center, Casper, WY; Chad Olson, Hayden-Wing Associates, LLC., Laramie, WY; Gregory Johnson, Western EcoSystems Technology, Inc., Cheyenne, WY; Nicholas Kaczor, U.S. Fish and Wildlife Service, Lakewood, CO; Chris Swanson, Kulm Wetland Management District, Fish and Wildlife Service, Kulm, ND; and Brett Walker, Avian Research Program, Colorado Division of Wildlife, Grand Junction, CO.
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8:40 to 9:00 am	<i>Greater Sage-Grouse Select Nest Sites and Brood Sites Away from Avian Predators.</i> <b>Jonathan B. Dinkins</b> and Michael R. Conover, Department of Wildland Resources, Utah State University, Logan, UT; Christopher P. Kirol and Jeffrey L. Beck, Department of Ecosystem Science and Management, University of Wyoming, Laramie, WY.
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9:00 to 9:20 am	<i>Greater Sage-Grouse Winter Habitat Selection in South-Central, Wyoming: Response to Anthropogenic and Environmental Factors Characterizing Winter Habitat.</i> <b>Jeffrey L. Beck</b> , Jennifer E. Hess, Kurt T. Smith, and Christopher P. Kirol, Department of Ecosystem Science and Management, University of Wyoming, Laramie, WY; Frank C. Blomquist, BLM Rawlins Field Office, Rawlins, WY.
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9:20 to 9:40 am	<i>Short-Term Impacts to Greater Sage-Grouse from Wind Energy Development.</i> <b>Chad W. LeBeau</b> and Jeffrey L. Beck, University of Wyoming, Laramie, WY; Greg D. Johnson and Ryan Nielson, WEST, Inc., Cheyenne, WY; Matt Holloran, Wyoming Wildlife Consultants, Pinedale, WY.
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9:40 to 10:00 am	<i>Modeling Greater Sage-Grouse Source and Sink Habitats in a Developing Coalbed Natural Gas Field in South-Central Wyoming.</i> <b>Christopher P. Kirol</b> , Jeffrey L. Beck, Department of Ecosystem Science and Management, University of Wyoming, Laramie, WY; Snehalata V. Huzurbazar, Department of Statistics, University of Wyoming, Laramie, WY; Frank C. Blomquist, BLM Rawlins Field Office, Rawlins, WY.
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10:00 to 10:20 am	<i>Break</i>
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***Session II D. Inventory and Modeling Tools and Conservation of Greater Sage-Grouse in Southwest Wyoming***

10:20 to 10:40 am	<i>Map and Inventory Water Resources to Help Create a Sage-Grouse Brood-Rearing Model in Order to Influence Management Decisions.</i> <b>Erik E. Norelius</b> , Lawrence W. Ashton III, Jerry A. Pierce, and Ronald L. Mitchell, BLM Kemmerer Field Office, Kemmerer, WY.
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10:40 to 11:00 am	<i>Implementing Wyoming's Sage-Grouse Core Area Strategy via the Density and Disturbance Calculation Tool (DDCT) – Swinging a Dead Cat? Tom Christiansen</i> , Wyoming Game & Fish Department, Green River, WY; Chris Keefe, Travis Bargsten, BLM Wyoming State Office, Cheyenne, WY; Nyssa Whitford, Wyoming Game & Fish Department, Lander, WY; Sydney Thielke, BLM Lander Field Office, Lander, WY; Mary Flanderka, Wyoming Game & Fish Department Headquarters Office, Cheyenne, WY; Amanda Losch, Wyoming Game & Fish Department, Casper, WY; and Jim Oakleaf, University of Wyoming, Wyoming Geographic Information Science Center, Laramie, WY.
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<u><b>Session II D, continued. Inventory and Modeling Tools and Conservation of Greater Sage-Grouse in SW Wyoming</b></u>		
11:00 to 11:20 am	<i>Collection, Assemblage and Population of a Sagebrush Treatment Geodatabase in Wyoming Sage-Grouse Core Areas for the Wyoming Game and Fish Department. <b>Morgan W. Graham</b> and Sean Beckett, Conservation Research Center, Teton Science Schools, Jackson, WY.</i>	
11:20 to 11:30 am	<i>Session II Questions</i>	
<b>Session III. Assessing Landscapes and Monitoring Change (Tools, Approaches, and Methodology)</b>		
11:30 to 11:35 am	<i>Introduction to Session III. <b>Steven L. Garman</b>, USGS Rocky Mountain Geographic Science Center, Denver, CO.</i>	
	<u><b>Session III A. Concurrent Topic:</b></u> <u><b>Muddy Creek, Carbon County</b></u>	<u><b>Session III B. Concurrent Topic:</b></u> <u><b>Assessment and Decision Aids Tools</b></u>
11:35 to 11:40 am	<i>Introduction to Muddy Creek. <b>Robert R. McDougal</b>, USGS Crustal Geophysics &amp; Geochemistry Science Center, Denver, CO.</i>	<i>Introduction to Assessment and Decision Aids Tools. <b>Steven L. Garman</b>, USGS Rocky Mountain Geographic Science Center, Denver, CO.</i>
11:40 to 12:00 pm	<i>Major Ion and Trace Element Characteristics of the Muddy Creek Watershed. <b>Melanie L. Clark</b>, USGS Wyoming Water Science Center, Cheyenne, WY; JoAnn M. Holloway, Carleton R. Bern, USGS Crustal Geophysics &amp; Geochemistry Science Center, Denver, CO; Travis S. Schmidt, Fort Collins Science Center, Fort Collins, CO; Robert R. McDougal, USGS Crustal Geophysics &amp; Geochemistry Science Center, Denver, CO.</i>	<i>Energy and Ecosystems - An Integrated Assessment for Southwestern Wyoming. <b>Zachary Bowen</b>, Patrick Anderson, Timothy Assal, USGS Fort Collins Science Center, Fort Collins, CO; Steven Garman, USGS Rocky Mt. Geographic Science Center, Denver, CO; Steve Germaine and Daniel Manier, USGS Fort Collins Science Center, Fort Collins, CO; Robert McDougal, USGS Crustal Geophysics &amp; Geochemistry Science Center, Denver, CO.</i>
12:00 to 1:00 pm	<i>Lunch</i>	
1:00 to 1:20 pm	<i>Muddy Creek Biogeochemistry: Sources for Nutrients and Potential Ecosystem Impacts. <b>JoAnn M. Holloway</b>, USGS Crustal Geophysics &amp; Geochemistry Science Center, Denver, CO; Craig A. Stricker, USGS Fort Collins Science Center, Fort Collins, CO; Melanie L. Clark, USGS Wyoming Water Science Center, Cheyenne, WY; Robert R. McDougal, USGS Crustal Geophysics &amp; Geochemistry Science Center, Denver, CO.</i>	<i>SUITEWATER: A Watershed-Based Natural Resource Planning and Analysis Tool. <b>Teal B. Wyckoff</b>, Phillip L. Polzer, Wyoming Geographic Information Science Center, University of Wyoming, Laramie, WY; Nephi J. Cole, Natural Resources Conservation Service, Cheyenne, WY; Catherine C. Rosenthal, Wyoming Association of Conservation Districts, Sheridan, WY; Jeffrey D. Hamerlinck, Wyoming Geographic Information Science Center, University of Wyoming, Laramie, WY.</i>
1:20 to 1:40 pm	<i>Trace Elements in the Muddy Creek Food Web Prior to Most Coalbed Natural Gas Development. <b>Lusha Tronstad</b>, and Wendy Estes-Zumpf, Wyoming Natural Diversity Database, University of Wyoming, Laramie, WY.</i>	<i>Building Wisdom to Support Wildlife Decision Making in Wyoming via Web-Based GIS Technology: Overview of the Wyoming Interagency Spatial Database &amp; Online Management System. <b>Jeffrey D. Hamerlinck</b>, Wyoming Geographic Information Science Center, University of Wyoming, Laramie, WY; Kirk A. Nordyke, Wyoming Game and Fish Department, Cheyenne, WY; Philip L. Polzer and Teal B. Wyckoff, Wyoming Geographic Information Science Center, University of Wyoming, Laramie, WY.</i>

	<u><b>Session III A, continued:</b></u> <u><b>Muddy Creek, Carbon County</b></u>	<u><b>Session III B, continued:</b></u> <u><b>Assessment and Decision Aids Tools</b></u>
1:40 to 2:00 pm	<i>Development of Riparian Consumers as Indicators of Aquatically Derived Selenium in Muddy Creek, WY.</i> <b>Travis S. Schmidt</b> , USGS Fort Collins Science Center, Fort Collins, CO; Ruth E. Wolf, USGS Crustal Geophysics & Geochemistry Science Center, Denver, CO; Craig A. Strickler, USGS Fort Collins Science Center, Fort Collins, CO; JoAnn M. Holloway and Carleton R. Bern, USGS Crustal Geophysics & Geochemistry Science Center, Denver, CO; Melanie L. Clark, USGS Wyoming Water Science Center, Cheyenne, WY; Robert R. McDougal, USGS Crustal Geophysics & Geochemistry Science Center, Denver, CO.	<i>Wyoming Integrated Resource Management Application (IRMA): The NRCS Wyoming Cultural and Wildlife Resources Planning Tools.</i> <b>Philip L. Polzer</b> , Wyoming Geographic Information Science Center, University of Wyoming, Laramie, WY; Randy J. Wiggins, Natural Resources Conservation Service, Casper, WY; Teal B. Wyckoff and Jeffrey D. Hamerlinck, Wyoming Geographic Information Science Center, University of Wyoming, Laramie, WY.
2:00 to 2:20 pm	<i>Natural Salinity Fluctuations in a Snowmelt Dominated Watershed Undergoing Energy Development.</i> <b>Carleton R. Bern</b> , USGS Crustal Geophysics & Geochemistry Science Center, Denver, CO; Melanie L. Clark, USGS Wyoming Water Science Center, Cheyenne, WY; JoAnn M. Holloway; Robert R. McDougal, USGS Crustal Geophysics & Geochemistry Science Center, Denver, CO; Travis S. Schmidt, USGS Fort Collins Science Center, Fort Collins, CO.	<i>Simulating Future Effects of Energy Development on Natural Resources.</i> <b>Steven L. Garman</b> , USGS Rocky Mountain Geographic Science Center, Denver, CO; Daniel Manier, USGS Fort Collins Science Center, Fort Collins, CO.
2:20 to 2:40 pm	<i>Break</i>	
<u><b>Session III C. Ecological Assessments &amp; WLCI Focal Ecosystems</b></u>		
2:40 to 3:00 pm	<i>It's Not Easy Measuring Green - Or Is It?</i> <b>Geneva W. Chong</b> , USGS Northern Rocky Mountain Science Center, Bozeman, MT; Heidi Steltzer, Department of Biology and Agriculture, Fort Lewis College, Durango, CO; Rick Shory, Paul Evangelista, Nick Young, and Sara Simonson, Natural Resource Ecology Lab, Colorado State University, Fort Collins, CO.	
3:00 to 3:20 pm	<i>Ecoregional Assessment Tools and Models for the Wyoming Basins.</i> <b>Cameron L. Aldridge</b> , Colorado State University and USGS Fort Collins Science Center, Fort Collins, CO; Steven E. Hanser, USGS Forest and Rangeland Ecosystem Science Center, Boise, ID; Matthias Leu, Department of Biology, College of William and Mary, Williamsburg, VA; Steven T. Knick, USGS Forest and Rangeland Ecosystem Science Center, Boise, ID.	
3:20 to 3:40 pm	<i>Limber Pine (<i>Pinus flexilis</i>) and Other Conifer Presence and Ecotonal Movement on the Landscape of the Ferris Mountains in the Cherry Creek and Pete's Creeks Area from 1681 to 2009.</i> <b>Robert E. Means</b> , Samuel E. Cox, and Susan Caplan, BLM Wyoming State Office, Cheyenne, WY; William Mack, BLM Kemmerer Field Office, Kemmerer, WY.	
3:40 to 4:00 pm	<i>Assessing Limber Pine Stand Conditions after Mountain Pine Beetle Outbreaks in the Southern Rocky Mountains.</i> <b>Christy Cleaver</b> , William Jacobi, Forest and Shade Tree Pathology, Department of Bioagricultural Sciences and Pest Management, Colorado State University, Fort Collins, CO; Kelly Burns, USDA Forest Service, Forest Health Protection, Lakewood Service Center, Lakewood, CO.	
4:00 to 4:20 pm	<i>Fence-line Contrasts in High-Elevation Wetlands of a Sagebrush Ecosystem: Soil Organic Matter.</i> D. Terrance Booth, Rangeland Scientist (Retired), USDA Agricultural Research Service, High Plains Grasslands Research Station, Cheyenne, WY; Paul J. Meiman, Department of Forest and Rangeland Stewardship, Colorado State University, Fort Collins, CO; <b>John C. Likins</b> , (Retired), BLM Lander Field Office, Lander, WY.	



<b><u>Session III C, continued. Ecological Assessments &amp; WLCI Focal Ecosystems</u></b>	
4:20 to 4:40 pm	<i>Sagebrush-steppe Wetlands and Meadows of the Upper Sweetwater River: A Historical Analysis.</i> <b>D. Terrance Booth</b> , (Retired), USDA Agricultural Research Service, High Plains Grasslands Research Station, Cheyenne, WY; John C. Likins, (Retired), BLM Lander Field Office, Lander, WY; Samuel E. Cox, BLM Wyoming State Office, Cheyenne, WY.
4:40 to 5:00 pm	<i>Riparian Forests in Dry Landscapes.</i> <b>Gregor T. Auble</b> , USGS Fort Collins Science Center, Fort Collins, CO.
<b>Thursday, May 17</b> <b>Science Presentations, Holiday Inn Conference Center</b>	
<b><u>Session III D. Monitoring Methods, Approaches, and Tools</u></b>	
8:00 to 8:20 am	<i>Synthetic Satellite Imagery- A New Tool for Long-term and Effectiveness Monitoring of Habitat Treatments.</i> <b>Edward Olexa</b> , USGS Northern Rocky Mountain Science Center, Bozeman, MT; Rick Lawrence, Spatial Sciences Center, Montana State University, Bozeman, MT.
8:20 to 8:40 am	<i>Understanding Sagebrush Component Change across the Wyoming Landscape Conservation Initiative Area with Remote Sensing, 2006-2010.</i> <b>Collin Homer</b> and Debbie Meyer, USGS Earth Resources Observation and Science Center, Sioux Falls, SD; Cameron Aldridge, Colorado State University and USGS Fort Collins Science Center, Fort Collins, CO.
8:40 to 9:00 am	<i>Assessment and Monitoring of Semi-Arid Woodlands in the Little Mountain Ecosystem.</i> <b>Timothy Assal</b> , Patrick Anderson, and Alexandra Urza, USGS Fort Collins Science Center, Fort Collins, CO.
9:00 to 9:20 am	<i>Proper Functioning Condition (PFC) and Multiple Indicator Monitoring (MIM) Overview.</i> <b>Dennis Doncaster</b> , BLM Rock Springs Field Office, Rock Springs, WY.
9:20 to 9:40 am	<i>The WLCI Interagency Monitoring Team: Efforts and Accomplishments.</i> <b>Daniel Manier</b> , USGS Fort Collins Science Center, Fort Collins, CO; Steve Garman, USGS Rocky Mountain Geographic Science Center, Denver, CO; <b>Marie Dematatis</b> , Chicago Botanical Intern and BLM Rock Springs Field Office, Rock Springs, WY.
9:40 to 9:50 am	<b><i>Session III Questions</i></b>
9:50 to 10:10 am	<i>Break</i>
<b>Session IV: Addressing Change through Management and Conservation Actions</b>	
10:10 to 10:15 am	<i>Introduction to Session IV.</i> <b>Patrick Anderson</b> , USGS Fort Collins Science Center, Fort Collins, CO.
<b><u>Session IV A. Distribution, Evaluation, and Treatment of Invasive Plants</u></b>	
10:15 to 10:35 am	<i>The Distribution of Invasive Plants Measured and Modeled Across the WLCI Area.</i> <b>Daniel Manier</b> , Spencer Schell, USGS Fort Collins Science Center, Fort Collins, CO; Cameron Aldridge, USGS Fort Collins Science Center and Colorado State University, Fort Collins, CO.
10:35 to 10:55 am	<i>Noxious weeds in Wyoming – Wyoming Weed and Pest Districts.</i> <b>Kimberly Johnson</b> , Fremont County Weed and Pest, Riverton, WY.
10:55 to 11:15 am	<i>Strategic Management of Cheatgrass in Wyoming.</i> <b>Brian A. Meador</b> , University of Wyoming, Laramie, WY.
11:15 to 11:35 am	<i>Controlling Bromus tectorum aka Cheatgrass Using Integrated Management in Oil and Gas Development in South West Wyoming.</i> <b>Deej Brown</b> , BLM Kemmerer Field Office, Kemmerer, WY.
11:35 to 12:35 pm	<i>Lunch</i>

	<u><b>Session IV B. Concurrent Topic:</b></u> <b><i>Conservation Planning, Partnerships, and Ecosystem Services</i></b>	<u><b>Session IV C. Concurrent Topic:</b></u> <b><i>Evaluation of Habitat Treatments, Management Considerations, and Science Needs</i></b>
12:35 to 12:55 pm	<i>Assessing Socioeconomic Planning Needs (ASPN) Decision-Support Tool.</i> <b>Jessica M. Montag</b> , Leslie Richardson, Lynne Koontz and Natalie Sexton, USGS Fort Collins Science Center, Fort Collins, CO.	<i>The Wildlife Management Possibilities of Highway Underpasses.</i> <b>Tony W. Mong</b> , Wyoming Game and Fish Dept, Baggs, WY; Tim Woolley, Wyoming Game and Fish Dept, Cody, WY; Thomas Hart, Wyoming Department of Transportation, Cheyenne, WY; Chadwick D. Rittenhouse, University of Wisconsin-Madison, Madison, WI.
12:55 to 1:15 pm	<i>Collaborative Mapping and Social Learning: Interactive GIS for Natural Resource Management.</i> <b>Jessica M. Montag</b> , USGS Fort Collins Science Center, Fort Collins, CO; Patrick Reed, USFS, National Forest System, Anchorage, AK.	<i>The Cumberland/Unita Allotment: Success in Riparian Management with Livestock Grazing.</i> <b>Ron Mitchell</b> , and Jerry Pierce (Retired), BLM Kemmerer Field Office, Kemmerer, WY; Grazing Permittees of the Cumberland/Uinta Allotment, Uinta, County, WY.
1:15 to 1:35 pm	<i>Quantifying the Benefits of the Core Area Policy and Conservation Easements to Sage-Grouse in Wyoming.</i> <b>Holly Copeland</b> and Amy Pocewicz, The Nature Conservancy, Lander, WY; David E. Naugle, University of Montana, Missoula, MT; Tim Griffiths, NRCS, Bozeman, MT; Doug Keinath, Wyoming Natural Diversity Database, University of Wyoming, Laramie, WY; Jeffrey Evans, The Nature Conservancy, Laramie, WY; Jody Daline, The Nature Conservancy, Lander, WY.	<i>Building a Better Product: Habitat Restoration Efforts and Emerging Research Needs.</i> <b>Mark J. Hogan</b> , USFWS, Lander, WY.
1:35 to 1:55 pm	<i>Development of a Market for Ecosystem Services in the Upper Green River Basin.</i> Roger H. Coupal and Kristiana Hansen, Dept. of Agricultural & Applied Economics, University of Wyoming, Laramie, WY; Amy Pocewicz, The Nature Conservancy Lander, WY; <b>Melanie Purcell</b> , Sublette County Conservation District, Pinedale, WY.	<i>Synthesis of Lower Treeline Limber Pine (<i>Pinus flexilis</i>) Woodland Knowledge, Research Needs, and Management Considerations.</i> <b>Robert E. Means</b> , BLM Wyoming State Office, Cheyenne, WY.
1:55 to 2:15 pm	<i>Break</i>	
<b><i>Session IV D. Reclamation and Restoration of Disturbed Lands and Important Aquatic and Terrestrial Habitats</i></b>		
2:15 to 2:35 pm	<i>Muddy Creek Culvert Removal and Channel Restoration 2010.</i> <b>Nick Walrath</b> , Green River Project, Trout Unlimited, Lander, WY.	
2:35 to 2:55 pm	<i>Options for Native Plant Material Development in the Southern Rocky Mountains.</i> <b>Steve Parr</b> , Upper Colorado Environmental Plant Center, Meeker, CO.	
2:55 to 3:15 pm	<i>Five Year Results of "Seed Mixture" Re-vegetation Trials in the Pinedale Anticline Project Area.</i> <b>Karen J. Clause</b> , USDA NRCS, Pinedale, WY; Susan R. Winslow, NRCS Plant Materials Center, Bridger, MT; Jim Jacobs, WY USDA NRCS, Bozeman, MT.	
3:15 to 3:35 pm	<i>Five Year Results of "Replicated Plot" Re-vegetation Trials in the Pinedale Anticline Project Area.</i> <b>Karen J. Clause</b> , USDA NRCS, Pinedale, WY; Susan R. Winslow, NRCS Plant Materials Center, Bridger, MT; Jim Jacobs, USDA NRCS, Bozeman, MT.	
3:35 to 3:55 pm	<i>Shrub Translocation/Relocation for Habitat Enhancement for the Greater Sage-Grouse in Southwestern Wyoming.</i> <b>Deej Brown</b> , BLM Kemmerer Field Office, Kemmerer, WY.	
3:55 to 4:15 pm	<i>Homogenization in Vegetation and Soil Following Disturbance and Reclamation in Sagebrush Steppe.</i> <b>Caley Gasch</b> , and Peter Stahl, Department of Ecosystem Science & Management; Snehalata Huzurbazar, Statistics, University of Wyoming, Laramie, WY.	

<b><i>Session IV D, continued. Reclamation and Restoration of Disturbed Lands and Important Aquatic and Terrestrial Habitats</i></b>	
4:15 to 4:35 pm	<i>Investigating and Improving Sagebrush Reclamation in Bentonite Mining Areas of the Bighorn Basin. Zachary J. Liesenfeld, , Lyle King, and Peter Stahl, Department of Ecosystem Science &amp; Management, University of Wyoming, Laramie, WY.</i>
4:35 to 4:55 pm	<i>Restoration of Sagebrush Landscapes Jonah Field. Joshua Sorenson and Ralph Swift, (Retired), Encana Oil &amp; Gas (USA) Inc., Pinedale, WY.</i>
4:55 to 5:05 pm	<i>Session IV Questions</i>
5:05 to 5:15pm	<i>Workshop Closing Remarks.</i>



# WLCI 2012 Science Workshop Poster Agenda

## Tuesday, May 15 (6:00 pm to 8:00 pm) Poster Presentations, Holiday Inn Conference Center

Session I - Changing Landscapes: Development and Influence of Energy and Mineral Resources	<i>A Tale of Two Land Uses in the American West: Rural Residential Growth and Energy Development.</i> <b>Timothy J. Assal</b> and Jessica M. Montag, USGS Fort Collins Science Center, Fort Collins, CO.
	<i>Western Energy Citation Clearinghouse (WECC).</i> <b>Jessica M. Montag</b> , Carolyn J. Willis, and Levi W. Glavin, USGS Fort Collins Science Center, Fort Collins, CO.
	<i>Energy Map of Southwestern Wyoming: Energy Data Archived, Organized, and Accessible.</i> <b>Laura R.H. Biewick</b> , USGS Central Energy Resources Science Center, Denver, CO; Nicholas R. Jones, University of Wyoming Enhanced Oil Recovery Institute, Laramie, WY; Anna B. Wilson, USGS Central Mineral and Environmental Resources Science Center, Denver, CO.
	<i>Mineral Resources of the Wyoming Landscape Conservation Initiative (WLCI) Study Area - Past, present, and future.</i> <b>Anna B. Wilson</b> , USGS Central Mineral and Environmental Resources Science Center, Denver, CO.
Session II - Energy Development, Life History, and Habitats of Birds, Fish, and Small Mammals	<i>Effects of Wyoming Range Energy Development on Native Fish Communities.</i> <b>Carlin Girard</b> and Annika Walters, USGS, Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie, WY.
	<i>Energy Development And Wildlife Monitoring Database Organization In Wyoming.</i> <b>Hillary A. Walrath</b> and Peter D. Stahl, Dept. of Ecosystem Science and Management, University of Wyoming, Laramie, WY.
	<i>Natural Gas Development and Wildlife Mitigation in Wyoming: A Primer.</i> <b>Anne C. Jakle</b> , Ruckelshaus Institute of Environment and Natural Resources, University of Wyoming, Laramie, WY.
	<i>Common Raven Movement and Behavior Associated With Human Development in Southwestern Wyoming.</i> <b>Scott Mabray</b> , Utah State University, Logan, UT.
Session III – Muddy Creek	<i>Evaluating Natural Gas Development Impacts on Stream Ecosystems in an Upper Colorado River Watershed.</i> JoAnn M. Holloway, Carleton Bern, USGS Crustal Geophysics & Geochemistry Science Center, Denver, CO; Travis S. Schmidt, USGS Fort Collins Science Center, Fort Collins, CO; <b>Robert R. McDougal</b> , USGS Crustal Geophysics & Geochemistry Science Center, Denver, CO; Melanie L. Clark, USGS Wyoming Water Science Center, Cheyenne, WY; Craig A. Stricker, USGS Fort Collins Science Center, Fort Collins, CO; Ruth E. Wolf, USGS Crustal Geophysics & Geochemistry Science Center, Denver, CO.
Session III – Ecological Assessments and WLCI Focal Ecosystems	<i>Survey of Low-Elevation Aspen Woodlands in the Green River Basin.</i> <b>George Jones</b> , Wyoming Natural Diversity Database, University of Wyoming, Laramie, WY.
Session III – Monitoring Methods, Approaches, and Tools	<i>Extraction of Oil and Gas Pads from NAIP Imagery in Southwest Wyoming.</i> <b>Jamie L. McBeth</b> , USGS Rocky Mountain Geographic Science Center, Bozeman, MT; Steven L. Garman, USGS Rocky Mt. Geographic Science Center, Denver, CO.
Session III – Water Quality	<i>U.S. Geological Survey Water-Resources Data—NWISWeb: A Data Tool for the WLCI.</i> <b>Kirk Miller</b> , USGS Wyoming Water Science Center, Cheyenne, WY.
	<i>Wyoming Groundwater-Quality Monitoring Network.</i> <b>Gregory K. Boughton</b> , USGS Wyoming Water Science Center, Cheyenne, WY.
	<i>Bankfull-Channel Geometry and Discharge Curves for the Rocky Mountains Hydrologic Region in Wyoming.</i> <b>Katharine Foster</b> , USGS Wyoming Water Science Center, Cheyenne, WY.

Session IV - Distribution, Evaluation, and Treatment of Invasive Plants	<i>Exotic Annual Bromelinvasion and an Integrated Aboveground-belowground Assessment of Ecosystem Properties.</i> <b>Caley Gasch</b> , Dept. of Ecosystem Science & Management; Stephen Enloe, Dept. of Plant Sciences; Stephen Williams, Peter Stahl, Dept. of Ecosystem Science & Management, University of Wyoming, Laramie, WY.
Session IV - Conservation Planning, Partnerships, and Ecosystem Services	<i>Assessing Socioeconomic Planning Needs (ASPN) Decision-Support Tool.</i> <b>Jessica M. Montag</b> , Leslie Richardson, Lynne Koontz, and Natalie Sexton, USGS Fort Collins Science Center, Fort Collins, CO.
	<i>Sublette County Conservation District's Programs and Activities.</i> <b>Eric Peterson</b> , General Manager, Sublette County Conservation District, Pinedale, WY.
	<i>Identification and implementation of Native Fish Conservation Areas in the Upper Colorado River Basin.</i> <b>Daniel C. Dauwalter</b> , Trout Unlimited, Boise, Idaho John S. Sanderson, The Nature Conservancy, Ft. Collins, CO; Jack E. Williams, Trout Unlimited, Medford, OR; James R. Sedell, National Fish and Wildlife Foundation, Portland, OR.

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